U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Species Account
SHASTA CRAYFISH
Pacifastacus fortis

CLASSIFICATION: Endangered
Federal Register 53-38465; September 30, 1988
http://ecos.fws.gov/docs/federal_register/fr1488.pdf

CRITICAL HABITAT: None designated

RECOVERY PLAN: Final
Recovery Plan for the Shasta Crayfish. August 28, 1988.
http://ecos.fws.gov/docs/recovery_plan/980828.pdf


Shasta Crayfish
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FIVE-YEAR REVIEW
October 20, 2009. We recommended no change in status.
http://ecos.fws.gov/docs/five_year_review/doc2552.pdf
(Latest info on this species.)

DESCRIPTION
The Shasta crayfish (*Pacifastacus fortis*) is a small- to medium-sized crayfish. The total length of its carapace (shell covering the back over the walking legs) may reach 1-2 inches. Color is variable and may range from dark brownish green to dark brown on the topside and bright orange on the underside. Members of the Fall River population are dark orange-brown on the topside and bright red on the underside, especially on the chelae (pinchers). These colors provide camouflage for the crayfish among the volcanic rubble substrates of its habitat.

Males and females can easily be distinguished because the males have narrower abdomens and larger chelae than the females. The first two pair of swimmerets (tiny swimming legs) of the males are hard and modified for sperm transfer to the female during mating. These notable sexual characteristics can be seen in young larvae that are less than 0.4 inch long (total carapace length).

Mating occurs in October or November. The male deposits a capsule containing sperm on the underside of the female, near her genital opening. Soon, the female lays 10-70 eggs, which she fertilizes with the sperm and then attaches to the underside of her abdomen or tail. In spring, the eggs hatch into immature larva. These molt into miniatures of the adults. After they molt again, they gradually become free-living.

The food preferences and nutritional requirements of the species are unknown. We believe that the primary foods are periphyton (plankton which live attached to rooted aquatic plants) and small invertebrates such as snails. The crayfish have been observed feeding on snails, aquatic vegetation and organic debris.

DISTRIBUTION

Shasta crayfish are found only in Shasta County, California, in the Pit River drainage and two tributary systems, Fall River and Hat Creek drainages. They live in cool, clear, spring-fed lakes, rivers and streams, usually at or near a spring inflow source, where waters show little annual fluctuation in temperature and remain cool during the summer. Most are found in still and slowly to moderately flowing waters. The most important habitat requirement appears to be the presence of adequate volcanic rock rubble to provide escape cover from predators.

THREATS

This species is endangered by habitat loss from water diversions, predation, and competition with the exotic signal crayfish (*Pacifastacus leniusculus*) and other species. Two entire populations have been extirpated since 1978.

Many native and introduced fish, amphibians, reptiles and mammals found in the Pit River region are known to prey on crayfish, although predation on Shasta crayfish has not been documented.

REFERENCES FOR ADDITIONAL INFORMATION

Bouchard, R. W. 1977. Distribution, systematic status, and ecological notes on five poorly known species of crayfish in western North America (Decapoda: Astacidae and Cambaridae). Freshwater Crayfish 3:409-423.

Bouchard, R. W. 1978. Taxonomy, distribution, and general ecology of the genera of North America crayfishes. Fisheries 3:11-19.

Crandall, Keith A.& James W. Fetzner Jr. Crayfish Home Page

Daniels, R. A. 1980. Distribution and status of crayfishes in the Pit River drainage, California. Crustaceana 38:131-138.

Eng, L. L., and Daniels, R. A. 1982. Life history, distribution, and status of *Pacifastacus fortis* (Decapoda: Astacidae). California Fish and Game 68:197-212.

Riegel, J. A. 1959. The systematics and distribution of crayfishes in California. California Fish and Game 45:29-50.

Schwartz, F. J., R. Rubelmann and J. Allison. 1963. Ecological population expansion of the introduced crayfish, *Orconectes virilis*. Ohio Journal of Science. 63:266-273.

Thelander, C. ed. 1994. Life on the edge: a guide to California's endangered natural resources. BioSystem Books. Santa Cruz, CA. p 412-413.

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Last updated December 17, 2009